RE: Modeling Meeting on CEAP and CB Watershed Model Comparative Analysis
Gary Shenk
to:
'Kellogg, Robert - Beltsville, MD', Norfleet, Lee, Kelly Shenk
09/15/2010 01:04 PM
Cc:
"Lund, Daryl - Beltsville, MD", "Swenson, Richard - Beltsville, MD", Jeff Sweeney, Mark Dubin, Lewis Linker, Michael Barnes
Show Details

Bob,

Thanks for sending the table. We have .4 million acres of non-tidal water. Due to a bug (since fixed) in the Bay model, the water acres weren't counted, so the total bay acreage should be about 41 million acres.

The CEAP water is 1.1 million. Zooming in on the graphic, you can see that the Potomac is labeled water from the head of tide to about half way to the mouth. That accounts for about .7 million of the discrepancy.

The other factor is that we do not count tidal wetlands in the watershed model. These are part of the estuarine model, so if we included them, we would have double atmospheric deposition from those areas. Assuming that about half (pulling out a number) of your wetlands are tidal, that would be most of the rest of the difference.

The graphic appears to be in a projection that does not preserve direction, so it is a reasonable assumption that it preserves area. The GIS projection is probably not an issue.

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From: Kellogg, Robert - Beltsville, MD [mailto:Robert.Kellogg@wdc.usda.gov]
Sent: Wednesday, September 15, 2010 12:28 PM
To: Gary Shenk; Norfleet, Lee; shenk.kelly@epamail.epa.gov
Cc: Lund, Daryl - Beltsville, MD; Swenson, Richard - Beltsville, MD; Jeff Sweeney; Mark Dubin; Lewis Linker; Michael Barnes
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Regarding pasture acres in ag census—this also is not surprising that they differ from land-use-land-cover acreage estimates. Pastureland acres are provided by the farmer filling out the survey questionnaire, and are subject to what the farmer thinks of as pastureland on his place. I don't know how NLCD identifies pasture.

Water is a land cover category—see table 1 in the report. (Table 1 includes the 2 8-digit hucs that were excluded from the HUMUS/SWAT modeling).

Cheers—bob kellogg

Robert L. Kellogg, Ph.D.
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From: Gary Shenk [mailto:GShenk@chesapeakebay.net]
Sent: Wednesday, September 15, 2010 10:47 AM
To: Norfleet, Lee; shenk.kelly@epamail.epa.gov
Cc: Kellogg, Robert - Beltsville, MD; Lund, Daryl - Beltsville, MD; Swenson, Richard - Beltsville, MD; Jeff Sweeney; Mark Dubin; Lewis Linker; Michael Barnes
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Lee,

I'm very encouraged by the overall load agreement, but the acreage difference really jumps out at you in a couple of cases.

ow and
u have
4-digit
me, it's

ge by 4-digit HUC, I found that there were some
nd what we have. There still is probably an issue with
t below. The easiest way to do this is to look at the first
JBASIN in the GIS.

They match up like this:

E	Chesapeake Shores (0206)
W	Chesapeake Shores (0206)
X	Chesapeake Shores (0206)
P	Potomac (0207)
J	Rapp/York/James (0208)
R	Rapp/York/James (0208)
Y	Rapp/York/James (0208)
S	Susquehanna (0205)

The acreage comparison looks like this (million acres):

	BAY	CEAP	diff

Here are a few possible explanations for the difference.
1. Do the 4 digit HUCs include any tidal water? This could easily make the 6% difference. This seems very likely. All four 4-digit HUCs have more land area in the CEAP than in the corrected BAY and the differences appear to be
2. Are the 4 digit areas calculated from GIS? Is the projection an area-preserving projection like Albers?

The urban difference does not bother me very much at this point. You can come up with a lot of different estimates depending on how you define it. We are currently revising our estimates and they will be much more like yours in a few weeks.

The pasture difference looks like a big deal. Given that we are using ag census pasture acres can you see why there would be such a big difference?

- Gary

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From: Lee Norfleet [mailto:lnorfleet@brc.tamus.edu]
Sent: Tuesday, September 14, 2010 3:08 PM

To: shenk.kelly@epamail.epa.gov; Gary Shenk
Cc: 'Kellogg, Robert - Beltsville, MD'; 'Lund, Daryl - Beltsville, MD'; 'Swenson, Richard - Beltsville, MD'
Subject: RE: Modeling Meeting on CEAP and CB Watershed Model Comparative Analysis

Kelly and Gary,

We have some in EPA reviewing our document (one or both of you may have it), nonetheless, we can share some data tc make the best comparison possible. I have made an attempt and have learned of the areas in need of attention first. I have included a couple of tables to get us started, but you will readily see we need to reconcile total acres and acres within each sector at the 4 digit HUC level. I am hoping we can appropriately place Land/River segments into the 4 USGS 4 digit HUCs as a start.

In some respects we are fairly close on a per acre basis. But we will always have the problem of reporting points. Going from up stream to basin tidal zone, Edge of Field (CEAP) to Edge of Stream (Bay) to 4 digit outlet (Ceap) to Delivered to Basin (Bay).

This comparison is my priority activity, so I am pretty much ready and available as you are.

Lee

Sector	CEAP Total Acres	BAY	Difference Acres	%
	4,390,482		425,694	9.7
and	2,485,571	2,729,471	-243,900	-9.8
P Lands	5,278,375	2,765,480	2,512,895	
Total ulture	12,154,428	9,459,739	2,694,689	
	26,235,048	28,163,161	-1,928,112	-7.3
Urban (point + nonpoint)	4,682,155	2,915,033	1,767,122	37.7
Basin Total	43,071,631	40,537,933	2,533,698	5.9%

	Total Load (1000 tons)		Acre Load (tons)	
	BAY	CEAP	BAY	CEAP
Susquehanna (0205)	1,411	1,430	0.08	0.08
Chesapeake Shores (0206)	409	996	0.15	0.19
Potomac (0207)	1,394	2,329	0.15	0.25
Rapp/York/James (0208)	1,261	1,996	0.11	0.19
Total	4,476	6,751	0.11	0.16

Total Nitrogen	Total Load (1000 lbs)	Acre Load (lbs)

	BAY	CEAP	BAY	CEAP
Susquehanna (0205)	135,864	127,530	7.81	7.25
Chesapeake Shores (0206)	52,062	87,823	19.05	16.56
Potomac (0207)	70,711	70,992	7.85	7.55
Rapp/York/James (0208)	50,808	45,488	4.46	4.22
Total	309,445	331,833	7 63	7.70

Total Phosphorus	Total Load (1000 lbs)		Acre Load (lbs)	
	BAY	CEAP	BAY	CEAP
Susquehanna (0205)	4,841	3,939	0.28	0.22
Chesapeake Shores (0206)	3,680	6,373	1.35	1.20
Potomac (0207)	4,847	4,664	0.54	0.50
Rapp/York/James (0208)	6,177	3,388	0.54	0.31
Total	19,545	18,364	0.48	0.43

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-----Original Message-----
From: shenk.kelly@epamail.epa.gov [mailto:shenk.kelly@epamail.epa.gov]
Sent: Tuesday, September 14, 2010 7:59 AM
To: gshenk@chesapeakebay.net; Norfleet, Lee
Cc: Elworth.Lawrence@epamail.epa.gov; Stoner.Nancy@epamail.epa.gov; Batiuk.Richard@epamail.epa.gov; Edward.James@epamail.epa.gov; JSweeney@chesapeakebay.net; mdubin@chesapeakebay.net; Kari.Cohen@osec.usda.gov
Subject: Modeling Meeting on CEAP and CB Watershed Model Comparative Analysis

Hi Gary and Lee,
Last week, USDA and EPA met to discuss the CEAP Chesapeake study. They are very interested in continuing our comparative analysis of the CEAP results and the Chesapeake Bay Watershed Model inputs/outputs, while USDA conducts the external technical review. The idea is to have the comparative analysis completed and any discrepancies between our models identified and explained (both from a technical standpoint and from more of a layman's standpoint for media) before the CEAP report is released to the public (Kari's best guess is sometime within the next 1.5-2 months).

So, I'd like to work with you to set up our third meeting to continue this comparative analysis. Lee, we are hoping that the time is right for you to share with us the CEAP data so that our folks can work with you to dive into the analysis. Can the two of you work together to find a time for this meeting over the next 2-3 weeks, map out a plan for what the comparative analysis should include, share with each other relevant

data, and conduct some preliminary analyses in advance of the meeting?

Additional CB folks that shcuild be at the meeting to discuss CB Watershed Model inputs are Mark Dubin and Jeff Sweeney, both with UMD.

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